Interdisciplinary Research on Cultural Heritage

Supplementary Information

LaPa - CSIC
Contents at a Glance

- Research line structure
- Sample LaPa projects
- Internationalisation
- LaPa research infrastructures
Research Line Structure
Research Line Structure

Research Sub-Lines

- Landscape Archaeology and Cultural Landscapes
- Material Culture and Formalization Processes of Cultural Heritage
- Theoretical and Historiographic Research on Cultural Heritage Studies
- Archaeology of Buildings
- Processes of Heritage Formation: Memory, Identities and Conflicts
- Semantic Technologies for Cultural Heritage
- Socio-economics of Cultural Heritage
- Rock Art Studies
- Methodological Developments for Applied Archaeology
Research Line Structure

Services

- Archaeological Services Unit
- Horizontal Services Unit
LaPa is a collaborative and integrated research group, including researchers, technicians and support personnel.
Research Line Structure

Theoretical Model

Value chain of cultural heritage
Research Line Structure: Relationships between Sub-Lines

**Landscape Archaeology**

- Provides theoretical and methodological concepts.
- Provides a framework for the interpretation of social and cultural significance.

- Provides theoretical and methodological support.
- Integrates architecture as part of the technologies for the social construction of space and landscapes.

- Provides an arena for the materialisation of memories, identities and conflicts.

- Provides end-user needs for the definition of domain-specific languages for landscape description.
- Provides usage scenarios of geo-spatial technologies.

- Develops landscape perception models.

- Develops techniques and methodologies for analysis and management.

---

**Material Culture**

**Archaeology of Buildings**

**Memory, Identities and Conflicts**

**Semantic Technologies**

**Socio-economics**

**Archaeological Services Unit**
Research Line Structure: Relationships between Sub-Lines

Material Culture

- Contributes to the interpretation of landscapes, buildings and spaces.
- Provides hands-on experience.
- Contributes to the interpretation of landscapes, buildings and spaces.
- Studies the role of material culture in the creation of memory, identities and conflict.
- Provides end-user needs for the definition of domain-specific languages for decoration description.
- Explores access modes to material culture.
- Studies artefacts recovered during archaeological works.
  Develops techniques and methodologies for artefact management.
Research Line Structure: Relationships between Sub-Lines

Theoretical and Historiographic Research

- Provides theoretical foundations.
- Provides historiographic knowledge and introspection.

- Landscape Archaeology
- Material Culture
- Archaeology of Buildings
- Memory, Identities and Conflicts
- Semantic Technologies
- Socio-economics
- Archaeological Services Unit
- Horizontal Services Unit
Research Line Structure: Relationships between Sub-Lines

Archaeology of Buildings

- Provides end-user needs for the definition of domain-specific languages for heritage building description.
- Explores the ways in which buildings are perceived.
- Comprises an emerging market niche.

Semantic Technologies

Socio-economics

Archaeological Services Unit
Research Line Structure: Relationships between Sub-Lines
Memory, Identities and Conflicts

Contributes ethnographic fieldwork.
Provides opportunities to work directly with the social agents involved in the production of cultural heritage.
Offers an understanding of cultural heritage as a living process.

Offers an analysis of the identity value of heritage.

Develops protocols for the study of intangible heritage.
Provides the theoretical context to ground virtual world experiences.

Opens new fields of activity.

Landscape Archaeology
Material Culture
Archaeology of Buildings
Socio-economics
Semantic Technologies
Archaeological Services Unit
Research Line Structure: Relationships between Sub-Lines

Semantic Technologies

- Provides conceptual modelling foundations and techniques.
- Provides information processing tools and methods.

- Landscape Archaeology
- Material Culture
- Theoretical and Historiographic Research
- Archaeology of Buildings
- Memory, Identities and Conflicts
- Socio-economics
- Archaeological Services Unit
- Horizontal Services Unit
Research Line Structure: Relationships between Sub-Lines

Socio-economics

- Generates information for analysis.
- Generates information for analysis.
- Opens new fields for technological development.
- Opens up new opportunities for professionalisation.

Theoretical and Historiographic Research
Memory, Identities and Conflicts
Semantic Technologies
Archaeological Services Unit
Line Structure: Relationships between Sub-Lines

Archaeological Services Unit

- Generates information.
- Retrieves archaeological artefacts.
- Validates methodological models.
- Validates techniques. Generates information.
- Generates information.
- Validates technological advances.
- Generates information about the industry.

- Landscape Archaeology
- Material Culture
- Theoretical and Historiographic Research
- Archaeology of Buildings
- Memory, Identities and Conflicts
- Semantic Technologies
- Socio-economics
Horizontal Services Unit

- Provides project, financial and HR management services.
- Provides IT and other technical services.

- Landscape Archaeology
- Material Culture
- Theoretical and Historiographic Research
- Archaeology of Buildings
- Memory, Identities and Conflicts
- Semantic Technologies
- Socio-economics
- Archaeological Services Unit
Sample LaPa Projects
Sample LaPa Projects

Consolider Ingenio 2010

- *Research Programme on Technologies for the Conservation and Valuation of Cultural Heritage* (TCP)
- Dates: 2007 - 2011
- Director: Felipe Criado Boado
- 16 research groups (5 institutions) and 1 company
- Staff: 236 people (including 97 doctors)
- Aims to contribute to the construction of a science of heritage that sets the scientific bases for an integral study of cultural heritage, by proposing innovative solutions that let us approach its conservation rigorously and promote it as a lasting resource.
- Funded by Spanish Ministry of Science
- Funding: 6,000,000 €
Sample LaPa Projects

Archaeology in Contemporary Europe

- *Archaeology in Contemporary Europe: Professional Practices and Public Outreach*
- Major cultural cooperation project supported by the Culture Programme 2007 of the European Commission
- It includes 14 partner institutions from all over Europe, ranging from archaeological services and public institutions, through university departments and research institutes to cultural operators and associations
- Financing: 2,500,000 €
Sample LaPa Projects

Heritage Information System (SIP)

- *Heritage Information System of Santiago de Compostela*
- Applied research project funded by Consorcio de Santiago (government body for the management of historic Santiago de Compostela)
- Action 1: Archaeological urban GIS
- Action 2: Analysis and documentation of built heritage
- Staff: 8 people
- Dates: since 2007, ongoing
Sample LaPa Projects

**Corredor do Morrazo**

- Corredor do Morrazo (High capacity road, 21 km)
- 17 archaeological projects, including the archaeological monitoring of the works and 7 extensive excavations
- Dates: July 2003 - August 2004
- Staff: 191 (total); 23 (LaPa)
- Collaboration with 6 archaeology companies
- Funded by developers and the Galician Regional Government
- Collaboration with 4 building companies
Internationalisation
Internationalisation
LaPa Collaborating Organisations

- Research Line Archaeology and Social Processes, CSIC
  - RG Historia de la Tecnología. Arqueometalurgia, CSIC
  - RG Arqueología de la Arquitectura, CSIC
  - GI Antropológica sob Patrimonio y Culturas Populares, CSIC
  - Depto de Ingeniería Topográfica y Cartográfica, UPM

- Dept of Archaeology, Durham Univ
  - Centro Andaluz de Arqueología Ibérica, Jaén
  - Instituto de Estudios Sociales Avanzados, CSIC, Córdoba

- Archaeology Dept, Göteborg
  - Centro de Estudios del Hombre del Desierto, Arica
  - Digital Archaeology Lab, Univ of Washington

- Ingenio, CSIC-UPV, Valencia
  - ERA Arqueología Conservación e Gestão do Patrimonio, S. L.

- Institute of Business Studies, Aalborg Univ.
  - Équipe Protohistoire Européenne-MAE - UMR 7041, Nanterre
  - INRAP, Paris

- Archaeometalurgia de la Arquitectura, Vitoria-Gasteiz
  - RG Arqueología de la Arquitectura, CSIC

- Dept of Software Engineering, Univ of Technology, Sydney
  - School of Information Systems, Technology and Management, Univ of New South Wales

- Meertens Institute/The Royal Netherlands Academy of Arts and Sciences, Amsterdam
Internationalisation

LaPa’s Role Models

- Centre for Advanced Spatial Analysis, UCL
- Centre for Applied Archaeology, UCL
- Inst of Archaeology, Univ Oxford
- Museum of Archaeology & Anthropology, Univ Cambridge
- Dept Archaeology, Univ Southampton

- Department of Anthropology, Stanford Univ
- Center for Popular Culture Studies/Bowling Green State University, Ohio
- American Folklife Center, Library of Congress, Washington
- Fog Creek Software, New York

- Academy of Irish Cultural Heritages, Londonderry
- The Heritage Council, Kilkenny

- Archives of European Archaeology Project, Paris-Nanterre
- UMR 5608, Unité Toulousaine d’Archéologie et d’Histoire, Toulouse
- Laboratoire d’Informatique de Grenoble
- Dept of Archaeology, Univ Sheffield

- Archaeology Dept, Göteborg
- Groningen Institute of Archaeology

- Archeologia Medievale, Siena
- Archeologia Medievale, Padova
- Centro Internazionale di Studi sui Paesaggi Culturali, Ferrara

- Dept of Archaeology, Univ Sheffield
- Academy of Irish Cultural Heritages, Londonderry
- The Heritage Council, Kilkenny

- Archives of European Archaeology Project, Paris-Nanterre
- UMR 5608, Unité Toulousaine d’Archéologie et d’Histoire, Toulouse
- Laboratoire d’Informatique de Grenoble
- Dept of Archaeology, Univ Sheffield

- Archaeology Dept, Göteborg
- Groningen Institute of Archaeology

- Archeologia Medievale, Siena
- Archeologia Medievale, Padova
- Centro Internazionale di Studi sui Paesaggi Culturali, Ferrara
Internationalisation

LaPa Research Projects Abroad

- **Switzerland**: Prehistoric pottery
- **Sweden, Denmark and France**: Anthropological research projects on migration, religious practices and Dominican women abroad
- **Chile**: Rock art and cultural landscapes
- **Dominican Republic**: Anthropological research projects on migration, religious practices and Dominican women abroad
- **Argentina**: Hunter-gatherer landscapes
- **Uruguay**: Cultural landscapes and co-operation in cultural heritage research
- **USA**: Latin American migration project
- **Ethiopia**: Ethnoarchaeological fieldwork in Benishangul-Gumuz
LaPa Research Infrastructures
LaPa Research Infrastructures

Geographic Location in Santiago de Compostela

Site: IEGPS

Site: Monte da Condesa
LaPa Research Infrastructures

Geographic Location in Santiago de Compostela
LaPa Research Infrastructures

Geographic Location in Santiago de Compostela

Instituto de Estudos Galegos Padre Sarmiento
LaPa Research Infrastructures

Instituto de Estudos Galegos Padre Sarmiento
LaPa Research Infrastructures
Instituto de Estudos Galegos Padre Sarmiento

Archaeology of Architecture Unit
LaPa Research Infrastructures

Instituto de Estudos Galegos Padre Sarmiento
LaPa Research Infrastructures
Instituto de Estudos Galegos Padre Sarmiento

Meeting Room
LaPa Research Infrastructures

Instituto de Estudos Galegos Padre Sarmiento

Material Culture Lab
LaPa Research Infrastructures

Geographic Location in Santiago de Compostela

Site: Monte da Condesa
LaPa Research Infrastructures

Geographic Location in Santiago de Compostela

Monte da Condesa
LaPa Research Infrastructures

Monte da Condesa

- Cool room (soil samples, reference collections) 80 m²
- Storage 33 m²
- GPS Unit 1 m²
- Archive Room 30 m²
- Management 14 m²
  2 staff
- Work pool area 50 m²
  6 staff
- Work pool area 53 m²
  6 staff
- Paleoenvironment and sediments lab 33 m²
  4 staff
LaPa Research Infrastructures
Monte da Condesa

Work Pool Area
LaPa Research Infrastructures
Monte da Condesa

Work Pool Area
LaPa Research Infrastructures
Monte da Condesa

Archive Room
LaPa Research Infrastructures

Monte da Condesa

Paleoenvironment and Sediments Lab

- Total organic carbon (TOC) analyser
- Mass detector
- Pyrolyser
- Gas chromatograph
- Centrifuge
LaPa Research Infrastructures
Monte da Condesa

Paleoenvironment and Sediments Lab

- Scales
- pH meters
- Colorimeter (digital)
- Vacuum pumps
- Thermostatic stirrer
- Vacuum dessicator
- Fume hood
- Chemical storage

INSTITUTO DE ESTUDIOS GALEGOS PADRE SARMIENTO
LaPa Research Infrastructures
Monte da Condesa

Paleoenviroment and Sediments Lab

Water distiller (ultrapure)
Water distiller
Muffle furnace
Oven
Oven
Water bath (heated)
Existing Research Infrastructures
Monte da Condesa

Cooling Chamber
(for sample preservation)
Existing Research Infrastructures
Monte da Condesa

Sample Preparation
- Sieves
- Oven (air)
- Grinding instruments
- Scales
- Oven
- Muffle furnace
- Dessicator
- Freeze-drier
- Water bath
- Magnetic stirrers
- Centrifuge

Sample Preservation
- Water distillers
- Refrigerator
- Fungibles
- Chemicals
- Furniture
- Fume hood
- Cooling chamber
- Cupboards
- Storage room

Analysis
- Equipment
  - pH-meters
  - Colorimeter
  - Pyrolysis-GC/MS
  - Organic C analyser (TOC)
  - Microscope
  - Thin section preparation unit
  - Atomic absorption
  - X-Ray fluorescence
  - Isotope analysis
  - Mineralogical analysis

Outputs
- Texture
- Acidity (pH)
- C in solution
- Organic matter comp.
- Elemental comp.
- Mineralogical comp.
- Micromorphology
- Physicochemical prop.
- Chemical fractionation
- Isotopic comp.
- Radiocarbon age

Research Areas
- Geomorphology
- Pedology
- Organic geochemistry
- Organic markers
- Human activities
- Climate change
- Pottery (archaeometry)
- Chronofunctions
- Cultural landscapes

Legend
- Equipment owned
- Equipment hired

Paleoenvironment and Sediments Lab
Existing Research Infrastructures
Monte da Condesa

Storage Area
LaPa Research Infrastructures

Monte da Condesa

Fieldwork Vehicles
LaPa Research Infrastructures
Monte da Condesa

Fieldwork Tools
Existing Research Infrastructures

Monte da Condesa

GPS Base Station
Existing Research Infrastructures

Monte da Condesa

Laser 3D Scanner
The LaPa Information System (SI-LaPa)

**shared**
by over 40 people,
9 research sub-lines,
2 services,
dozens of projects

**pervasive**
being used
uninterruptedly
since 1994,
everyday,
by everybody

**evolving**
currently being extended
to cover most
heritage areas
LaPa - CSIC
Laboratorio de Patrimonio
Consejo Superior de Investigaciones Científicas

Santiago de Compostela
Spain

www.lppp.usc.es
lar@cesga.es